

Convolver 104 calculates convolution integration between symbol number s given by calculation length determination section 118 of a series of known signals sequentially output from known signal storage section 103 and a series of signals corresponding to s symbols selected at symbol intervals from the reception signal series stored in shift register 102 and difference calculation section 105 calculates difference vectors corresponding to 1 symbol of the signal series subjected to convolution integration. Addition section 106 sequentially adds up the calculated difference vectors, calculates addition difference vectors in the same way by shifting the reception signal series 1 sample at a time, memory 107 stores the time of shifting in association with the addition difference vectors and detection section 108 detects parts that satisfy a specific condition from the vectors stored in memory 107.

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